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Obstetric medical care in the United States of America

Michael P Carson[1,2], Kenneth K Chen[3,4] and Margaret A Miller[5,6]

Abstract

The current models of obstetric medical care utilized in the United States, how those models fit in with the overall care system, and ways to increase the role of obstetric internists will be reviewed.

Keywords

High-risk pregnancy, intensive care medicine, maternal-fetal medicine, complications

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Background

The prevalence of chronic medical disorders during pregnancy has more than doubled in recent years, from 15% in 1988 to 36% in 2007.[1,2] This increase has been attributed to a number of demographic trends, including the rising percentage of births among women aged 30 years and older (i.e., 20% in 2004 to 43% in 2014), the rising prevalence of maternal obesity in pregnancy (i.e., 20% in 2004 to 27% in 2014), and deferred fertility, with some women undergoing post-menopausal hormone replacement in order to become pregnant.[3,4] Data from the United States (US) show that poorly controlled maternal medical conditions can have an adverse impact on pregnancy outcomes, such as the associations between poorly controlled asthma and preterm rupture of membranes, and poor glycemic control in diabetes mellitus (DM) and major congenital anomalies.[5–8] Additionally, disorders arising during pregnancy, such as preeclampsia and gestational diabetes, identify women at long-term risk of future health conditions. A recent article documented that in contrast to a decreased maternal mortality seen in other countries, it has increased in the US, with the largest increase in the state of Texas: the rate increased from 17.7 deaths/100,000 live births in 2000 to 35.8 in 2014.[9] It is thus not surprising that the need has grown for ''obstetric internists''—internal medicine specialists able to address issues before, during, and after pregnancy.[2]

While the Centers for Disease Control (United States) has identified obesity and DM as modifiable pregnancy risks that should be targeted by medical providers, non-obstetricians in the US receive little if any formal training in pre-pregnancy planning, inter-pregnancy care, or antepartum management of medical issues during pregnancy.[10]

Patient referral patterns in the US are generally not restrictive. The majority of patients in the US obtain private health insurance, usually as a benefit from their employer who subsidizes the cost of the premium. Within the least restrictive policies, in addition to establishing care with a primary care physician, patients may directly contact and obtain appointments with medical subspecialists, surgeons, obstetricians, and perinatologists, essentially ''referring'' themselves. Some plans do require the primary care physician to submit a formal referral prior to seeing a medical subspecialist, but patients can still arrange their own appointments with obstetrician/gynecologists. Women being cared for by a medical subspecialist for chronic issues (diabetes, asthma, systemic lupus erythematosus (SLE)) will often be referred by that physician or their general obstetrician to a perinatologist for co-management, but the frequency at which those referrals are made in the context of pre-pregnancy planning is sporadic. Once pregnant, US citizens without health insurance are eligible to receive government issued antenatal healthcare coverage (Medicaid) until six weeks postpartum. These Medicaid programs typically require the general obstetrician to initiate and approve referrals to perinatologists or other providers.

There are numerous barriers to obstetric medicine practice in the US. First, women's health education in the US focuses on conditions of high prevalence across the lifespan, such as cardiac disease, contraception, breast disease, osteoporosis, and menopause. These issues either affect all women or are very common. In contrast, medically complicated pregnancies represent the minority of what maternity care providers see. Second, unlike in Canada to the north, there is no mandatory education for general internal medicine (GIM) trainees regarding the diagnosis and management of medical disorders in pregnancy, and there are few educational opportunities provided by US-based medical societies. For example, at the 3.5-day Society of GIM annual meeting, an organization for leading GIM educators and researchers, obstetric medicine discussions are consistently limited to one interest group and at most one, 90-min workshop. The 2.5-day 2016 Society of Hospital Medicine meeting had a single, 60-min session dedicated to medical disorders in pregnancy, and the 2.5-day American College of Physicians meeting had a 90-min ''Meet the Professor'' session. Third, GIM faculty who were not trained in obstetric medicine themselves have a low comfort level when dealing with these women, which has a further negative impact on trainees' exposure. Fourth, the US is well known to be a litigious environment in which to work, so physicians who care for pregnant women are exposed to the risk of a lawsuit for 18 years after the birth of a child. Finally, payment schemes are not conducive to multispecialty collaborative planning required to

[1]Departments of Medicine and Obstetrics & Gynecology, Rutgers-Robert Wood Johnson Medical School, New Brunswick, NJ, USA
[2]Department of Medicine, Jersey Shore University Medical Center, Neptune, NJ, USA
[3]Departments of Medicine and Obstetrics/Gynecology, Warren Alpert Medical School of Brown University, Providence, RI, USA
[4]Division of Obstetric & Consultative Medicine, Women & Infants Hospital of Rhode Island, Providence, RI, USA
[5]Department of Medicine, Warren Alpert Medical School of Brown University, Providence, RI, USA
[6]Women's Medicine Collaborative, Lifespan Physician Group, Providence, RI, USA

Corresponding author:
Michael P Carson, Department of Medicine, Jersey Shore University Medical Center, Ackerman 3, 1945 Route 33, Neptune, NJ 07753, USA.
Email: Michael.Carson@hackensackmeridian.org

optimally care for women with complicated pregnancies; rather, remuneration is based on volume, with primary care physicians reimbursed for face-to-face patient visits based on documentation to support increasing levels of complexity, and little to no reimbursement for time spent communicating with other clinicians or coordinating care outside of traditional office hours.

Internal medicine and obstetric medicine training

Both GIM and family medicine (FM) residents are trained to work as front-line "primary care" physicians, similar to Canadian general practitioners. There are 115,900 FM physician members of the American Academy of Family Physicians, and 148,000 GIM specialists who are members of the American College of Physicians in the US. Based on their insurance plans, patients are able to make an appointment with either type of primary care physician in their plan, including one who may be interested in addressing medical issues during pregnancy. Each type of primary care physician may then refer patients directly to medical subspecialists.

FM training is of three years' duration in an accredited residency program. Training includes medicine, pediatrics, and obstetrics/gynecology that offer exposure to medical issues during pregnancy. In contrast, GIM training (also of three years in length) focuses only on adult medicine. Encounters with medically complicated pregnancies are sporadic, and after the three years of training, the majority of physicians take the exam to become certified by the American Board of Internal Medicine as they enter clinical practice.

The only structured obstetric medicine training opportunity in the US is offered through Brown University at Women & Infants Hospital of Rhode Island (WIH) with ~9000 deliveries a year. Full-time faculty at the hospital supervise a two-year clinical fellowship with one to two fellows per year, but there is no certifying agency for this voluntary additional training within a clinical niche. Experienced faculty at both Women & Infants and Rhode Island Hospital offer a structured obstetric medicine rotation for residents, students, and visiting trainees. Sporadic training has occurred under the guidance of graduates of the fellowship, and one such trainee now practices full-time in the Bronx, NY. Other practitioners obtain experience on an ad hoc basis due to an inherent interest.

Preconception counseling

Preconception care aims to improve the health of women before conception in order to improve pregnancy-related outcomes. Progress towards this goal in the US has been slow in the past 30 years, primarily due to inconsistent implementation of interventions to identify and modify health risks before pregnancy.[11] A 2004 survey found that 84% of reproductive age women had a healthcare visit during the previous year, providing clinicians with an excellent opportunity to address pregnancy-related risks; however, multiple studies have shown that preconception care is not routinely addressed.[12] Only approximately one in six FM physicians or obstetrician–gynecologists surveyed had provided preconception care to the majority of women for whom they provided prenatal care.[13]

Gaps in training likely contribute to the low rate of preconception counseling. GIM training provides almost no exposure to pregnant patients, and while obstetric care providers are well-versed in routine preconception counseling about risk behaviors such as smoking, alcohol consumption, or prenatal vitamin intake, they receive little training about the potential impact of chronic medical conditions. As a result, primary care GIMs and obstetrician–gynecologists often defer issues to one another. For example, it is clear that women who have had gestational diabetes should have postpartum testing for persistent dysglycemia. The obstetrician–gynecologist may refer such a woman to her GIM physician for this postpartum testing, but as the GIM is not trained to obtain that history, s/he may not request glucose tolerance testing; among such women, postpartum testing occurs in only about 35%.[14] Alternatively, if the obstetrician–gynecologist obtains postpartum glucose testing, and the result is abnormal, s/he may refer the woman to her GIM or endocrinology subspecialist, but neither may discuss the impact of glycemic control in the context of future preconception planning. Although obstetric medicine providers are ideally suited to address preconception health, the paucity of providers and lack of recognition means referrals may not occur.

In 2006, the Centers for Disease Control published 10 recommendations to improve awareness about the effectiveness of specific preconception interventions for reproductive age women, regardless of whether women are actively planning to conceive; this has been termed "PRE- or INTER-pregnancy planning."[10,15–17] However, the lack of a population health infrastructure and inadequately trained primary care (GIM and FM), obstetrician–gynecologist, and internal medicine subspecialist providers has resulted in a failure to action this recommendation. Instead, women are referred to obstetric medicine or internal medicine subspecialists *after* they are already pregnant, when interventions are too little and too late.

Pregnancy care-models of interaction

The majority of obstetric medical care in the US is competently provided by perinatology/Maternal-Fetal Medicine (MFM). MFM physicians complete a four-year obstetrics and gynecology residency followed by a two- to –three-year clinical fellowship during which they specialize in management of obstetric complications, fetal ultrasound, and maternal disease during pregnancy. These practitioners number just over 2000 full-time and many other part-time clinicians. Most institutions employ one full-time MFM for every 1500–3000 deliveries, but there is a shortage of trained clinicians. In 2015, there were over 90 applicants for the 70 MFM fellowship positions on offer, and the Society of Maternal-Fetal Medicine has been lobbying for more funding to open up more fellowship positions.

The common practice pattern is for the primary obstetrician–gynecologist or internal medicine subspecialist to refer a woman with established disease (such as SLE, severe asthma, or renal disease) to an MFM specialist, while women with common and/or less severe medical disorders are treated by front-line GIM/FM physicians. Increasingly, the focus has been on care provision by FM, as long as the medical complications are not too complex, because these practitioners had some exposure to pregnancy issues during their training.

MFMs are highly competent clinicians who can and do manage medical issues well. However, collaboration and co-management of more complex patients that benefit care are impeded by a culture of independence learned during MFM training, as well as over-concern that the obstetric internist will reduce their fee-for-service volume. Another barrier to collaboration is the current American care model of decreasing primary care reimbursement combined with an increasing computer documentation burden.

Given the shortage of MFM's in the US, addressing reproductive planning and optimizing maternal medical diagnosis are perfect for obstetric internists. At a few isolated high-volume obstetric centers, women with chronic medical conditions or those who have developed medical conditions during the course of pregnancy are frequently referred by obstetrician–gynecologists (who maintain obstetric care) to an obstetric medicine physician for co-management; alternatively, other women have their care transferred to MFM along with a referral to obstetric medicine who will co-manage along with MFM. In Rhode Island, there is a model of maternity care that is exceptional for the US. Women are seen at a multidisciplinary clinic staffed simultaneously by MFM, obstetric medicine, and the relevant internal medicine subspecialist. These clinics involve collaborative case conferences to coordinate care, including whether or not an investigation should be performed during pregnancy or delayed until postpartum, developing a labor and delivery plan, counseling regarding use of medications in

pregnancy and lactation, and the nature and frequency of maternal and fetal surveillance.

Management of the acutely unwell pregnant patient

At WIH, the acutely unwell pregnant/postpartum woman is typically cared for by both a dedicated team that includes both obstetric medicine and MFM members. WIH developed the Acute Monitoring Service (AMS) unit, a type of High Dependency Unit, a step down from a medical intensive care unit where unstable or potentially unstable patients may be closely monitored by the medical and nursing staff. The AMS has the capability to initiate inotropic/vasopressor and non-invasive ventilatory support. Sicker patients are transferred to the medical intensive care unit of the neighboring Rhode Island Hospital and are typically transferred back once stabilized from their acute decompensation. AMS policy requires that collaborative daily rounds take place with all members of the interdisciplinary team, including anesthesia and pharmacy. Again, a system in which the physicians have time for daily face-to-face collaboration is an exception in the US medical system.

Linking with general/family practitioners in this model: Pre, during, and after pregnancy

In most institutions, there is little to no infrastructure that will link pregnant women with medically complicated pregnancies back to their primary care provider. In 2014, the Society of Maternal-Fetal Medicine held a workshop about pregnancy as a ''stress test'' for future maternal health, particularly cardiovascular disease.[18] A group described referring pregnant women with medical issues to a postpartum ''maternal health clinic'' staffed by subspecialists where focused screening would identify cardiovascular risk markers, but where longitudinal follow-up was not offered. This approach would actually fragment care, particularly as it was not clear that follow-up plans would be developed, modified, or provided to the primary care internist.[19] Rather than generating a one-time visit with an additional provider who does not offer continuity of care, it seems preferable to develop a mechanism to refer women with a complicated pregnancy that identifies heightened cardiovascular risk back to a GIM provider who can ''quarterback'' care for multiple issues, provide longitudinal care, and send specific, actionable recommendations developed by the postpartum care team. One group demonstrated that this approach following medically complicated pregnancies was able to increase the rate of exercise among these women from 14% to 76% postpartum.[20]

Job opportunities

Job opportunities for obstetric medicine physicians are scarce. Despite the shortage of trained MFM clinicians, medical center leaders are not familiar with the obstetric medicine specialty and what it can offer, and as such, they do not understand how to develop business models around them. Even when an obstetric internist was present in one large US center, where he was promoted by the obstetrics and gynecology and internal medicine department chairmen and meetings were held between the clinician and hospital ''product line'' leadership, the hospital administration and marketing leadership did not have the vision or interest to make promotion of this unique regional asset a priority.

The business stream for MFMs involves women with obstetric risks, fetal ultrasound, and addressing past or current maternal medical issues. For a GIM physician to have an active obstetric medicine practice, there are two potential models: (1) integration into an MFM practice by MFM physicians who are not concerned about interruptions of their referral base and revenue stream and who recognize the unique value of a GIM who is not afraid of pregnant/postpartum women and/or (2) independently build up an ad hoc consultative practice as part of their primary care practices.

The first of these models of obstetric medicine has recently been accepted in a few isolated centers in the US. MFM groups direct non-obstetric consults to the obstetric medicine physician. Rather than worrying about this practice decreasing revenue to the MFM group, sending complicated medical cases to the obstetric internist may actually allow MFMs to focus on complex obstetric patients and the more lucrative procedures, including ultrasound. Internists ambitious enough to see past the legal concerns to the personal, professional, and academic benefits of caring for these women are an unusual asset with whom the collaboration can be very rewarding.

The second of these models of obstetric medicine is entrepreneurial. The GIM physician needs to have excellent relationship-building skills to develop a consultative obstetric medicine practice that is part of their general primary care practice. To generate a reasonable clinical volume, they must practice at a center with at least 5000 deliveries per year. In this model, the bulk of the consultations will come from general obstetrician–gynecologists who, with proper networking, will use the obstetric internist as an asset to address common GIM issues, including headaches, back pain, palpitations, thyroid disease, and chronic hypertension. In centers where medical subspecialists have little interest in managing pregnant patients or do not offer the kind of attention that the obstetrician–gynecologists desire, the obstetric medicine physician can offer themselves as a resource. This is especially true for endocrinology patients with thyroid disorders or diabetes, be it type 1, type 2, or gestational. Ideally, the obstetric internist should also look to integrate with MFM on multidisciplinary teams, and promote themselves to the MFM as the first-line consultant (before a medical subspecialist) who can coordinate care for more than one issue and integrate medical and obstetric issues. Beyond the medico-legal issues of dealing with pregnant women, challenges include department leadership and/or colleagues who may be reluctant to assist and allow for provision of continuous coverage.

The future

Caring for medical illness in pregnancy remains a significant gap in women's health in the US. Obstetric medicine has existed as a specialty in the US for >20 years; however, the growth of the specialty has been slow and job prospects are limited. Challenges include limited training opportunities, no board certification process, overlap in scope of practice with MFMs who may be both unjustifiably concerned about a negative impact of collaboration on revenue and practicing with a ''do it all'' mentality.

Discussions that the paradigm of care of pregnant woman is changing tend to be at policy/administrative levels without concrete backing from insurers, and do not provide resources at the front-lines of primary care. The basic tenet of preconception care is to optimize the woman's health prior to pregnancy in order to improve pregnancy outcomes, and that pregnancy may impact on a woman's future health.[21] Models of care that will address this new paradigm require departmental and institutional support for a multidisciplinary team that includes medical and obstetric providers as well as specialists in both fields, and payers must develop a system to compensate them for time spent on this ''less efficient'' care model that might not generate as many patient visits but can decrease the risk of adverse outcomes. This model aligns well with efforts in the US to create the ''patient-centered medical home'' where the goal is delivery of coordinated care by a multidisciplinary team who share the common goals of improving patient experience, improving health outcomes and doing both of this in a financially sustainable way.

The explosion of Health Information Technology (HIT) in the US also provides an opportunity for novel approaches to the delivery of preconception, prenatal and postpartum care of medical illness in pregnancy. A virtual patient advocate has been proposed as an example of

a HIT system to deliver preconception care.[22] Rather than annoying built-in ''alerts'' prompting individual providers to address preconception risk, it would be more efficient if the payment system incentivized health systems to set up population health queries that identified patients, and hire non-physician staff to coordinate proper referrals. Online modules and curricula providing guidelines for care of medical illness in pregnancy could help address gaps in care, but only if providers have an interest in taking time from their busy practices to treat this rewarding but logistically challenging population. Of all we have described, the primary issue is that most of this care does not fit in with the typical office practice struggling with lower primary care reimbursement and an increased data entry burden due to the electronic medical record.

Obstetric medicine providers can/should be leaders in these efforts as internal medicine traditionally has provided the ''care coordination'' aspect of care across the lifespan, but a philosophical shift by payers to incentivize institutions and providers must take place in order to achieve this.

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References

1. Jones EF, Forrest JD, Henshaw SK, et al. Unintended pregnancy, contraceptive practice and family planning services in developed countries. *Fam Plann Perspect* 1988; 20: 53–67.
2. Ehrenthal D, Jurkovitz C, Hoffman M, et al. More common than we think: chronic medical risks in a representative obstetric population. *JGIM* 2007; 22: 53.
3. Marchofdimes.org/Peristats. Obesity among women of childbearing age: United States, 2004-2014, www.marchofdimes.org/Peristats/ViewSubtopic.aspx?reg=99&top=17&stop=350&lev=1&slev=1&obj=1 (2016, accessed 21 March 2016).
4. CDC.gov. Natality trends in the United States, 1909–2013. March of dimes stats maternal obesity peristats, http://blogs.cdc.gov/nchs-data-visualization/us-natality-trends/ (accessed 21 March 2016).
5. Getahun D, Ananth CV, Oyelese Y, et al. Acute and chronic respiratory diseases in pregnancy: associations with spontaneous premature rupture of membranes. *J Matern Fetal Neonatal Med* 2007; 20: 669–675.
6. Miller E, Hare JW, Cloherty JP, et al. Elevated maternal hemoglobin A1c in early pregnancy and major congenital anomalies in infants of diabetic mothers. *N Engl J Med* 1981; 304: 1331–1334.
7. Getahun D, Ananth CV, Peltier MR, et al. Acute and chronic respiratory diseases in pregnancy: associations with placental abruption. *Am J Obstet Gynecol* 2006; 195: 1180–1184.
8. Enriquez R, Wu P, Griffin MR, et al. Cessation of asthma medication in early pregnancy. *Am J Obstet Gynecol* 2006; 195: 149–153.
9. MacDorman MF, Declercq E, Cabral H, et al. Recent increases in the U.S. maternal mortality rate: disentangling trends from measurement issues. *Obstet Gynecol* 2016; 128: 447–455.
10. Johnson K, Posner SF, Biermann J, et al. Recommendations to improve preconception health and health care–United States. A report of the CDC/ATSDR Preconception Care Work Group and the Select Panel on Preconception Care. *MMWR Recomm Rep* 2006; 55: 1–23.
11. Gorman MJ and Girton JR. A genetic analysis of deltex and its interaction with the Notch locus in Drosophila melanogaster. *Genetics* 1992; 131: 99–112.
12. Salganicoff A, Ranji U and Wyn R. Women and health care: a national profile: key findings from the Kaiser Women's Health Survey, www.kff.org/womenshealth/upload/Women-and-Health-Care-A-National-Profile-Key-Findings-from-the-Kaiser-Women-s-Health-Survey.pdf (2005, 19 October 2016).
13. Henderson JT, Weisman CS and Grason H. Are two doctors better than one? Women's physician use and appropriate care. *Wom Health Issues* 2002; 12: 138–149.
14. Carson MP, Frank MI and Keely E. Original research: postpartum testing rates among women with a history of gestational diabetes–systematic review. *Prim Care Diabetes* 2013; 7: 177–186.
15. Korenbrot CC, Steinberg A, Bender C, et al. Preconception care: a systematic review. *Matern Child Health J* 2002; 6: 75–88.
16. US Department of Health and Human Services. *Healthy People 2010*. Vol I, 2nd ed. Washington, DC: US Department of Health and Human Services, 2000.
17. US Department of Health and Human Services. *Healthy People 2010*. 2nd ed, Vol. II. Washington, DC: US Department of Health and Human Services, 2000.
18. Carson MP. Society for maternal and fetal medicine workshop on pregnancy as a window to future health: clinical utility of classifying women with metabolic syndrome. *Semin Perinatol* 2015; 39(4): 284–289.
19. Cusimano MC, Pudwell J, Roddy M, et al. The maternal health clinic: an initiative for cardiovascular risk identification in women with pregnancy-related complications. *Am J Obstet Gynecol* 2014; 210: 438 e431–438 e439.
20. Janmohamed R, Montgomery-Fajic E, Sia W, et al. Cardiovascular risk reduction and weight management at a hospital-based postpartum preeclampsia clinic. *J Obstet Gynaecol Can* 2015; 37: 330–337.
21. Kaaja RJ and Greer IA. Manifestations of chronic disease during pregnancy. *JAMA* 2005; 294: 2751–2757.
22. Jack BW, Atrash H, Bickmore T, et al. The future of preconception care: a clinical perspective. *Wom Health Issues* 2008; 18: S19–S25.